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Substitute Form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 6

Complete if Known

Application Number	10/687,830
Filing Date	October 20, 2003
First Named Inventor	Louis B. Rosenberg
Art Unit	2635
Examiner Name	Unassigned
Attorney Docket Number	IMMR-084/04US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code ² (if known)			
A		6,422,941	7/23/2002	Thomer et al.	
		6,160,489	12/12/2000	Perry et al.	
		6,111,577	8/29/2000	Zilles et al.	
		5,785,630	7/28/1998	Bobick et al.	
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		4,794,392	12/27/1988	Selinko	
		4,713,007	12/15/1987	Alban	
		4,708,656	11/24/1987	De Vries et al.	

Examiner Signature		Date Considered	12/21/04
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² Applicant's unique citation designation number (optional). ³ Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. ⁴ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁵ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁶ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁷ Applicant is to place a check mark here if English language Translation is attached.

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		3,902,687	6/25/1973	Hightower	
		3,623,064	11/23/1970	Kagan	
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		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
A		EP	0349086		1/3/1990	Stork Kwant B.V.	
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		JP	H7-24147		1/27/1995	Sega Corporation	
		JP	H5-192449		8/3/1993	Taito Corporation	

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		Examiner Name	Unassigned
Sheet 3 of 6	Attorney Docket Number	IMMR-084/04US	

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS		
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
As		BAIGRIE, "Electric Control Loading - A Low Cost, High Performance Alternative," <i>Proceedings of Interservice/Industry Training Systems Conference</i> , pp. 247-254, November 6-8, 1990.
		IWATA, "Pen-based Haptic Virtual Environment," 0-7803-1363-1/93 IEEE, pp 287-292, 1993.
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e		RUSSO, "Controlling Dissipative Magnetic Particle Brakes in Force Reflective Devices," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 63-70, ASME 1992.

Examiner Signature	<i>Alut</i>	Date Considered	12/21/04
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[Signature]		KONTARINIS et al., "Display of High-Frequency Tactile Information to Teleoperators," <i>Telemanipulator Technology and Space Telerobotics</i> , Won S. Kim, Editor, Proc. SPIE Vol. 2057, pp. 40-50, Sep. 7-9, 1993.
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	EBERHARDT et al., "OMAR - A Haptic display for speech perception by deaf and deaf-blind individuals," <i>IEEE Virtual Reality Annual International Symposium</i> , Seattle, WA, Sep. 18-22, 1993.	
[Signature]		RABINOWITZ et al., "Multidimensional tactile displays: Identification of vibratory intensity, frequency, and contactor area," <i>Journal of The Acoustical Society of America</i> , Vol. 82, No. 4, October 1987.

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Be		BEJCZY et al., "Kinesthetic Coupling Between Operator and Remote Manipulator," <i>International Computer Technology Conference, The American Society of Mechanical Engineers</i> , San Francisco, CA, August 12-15, 1980.	
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		KONTARINIS et al., "Tactile Display of Vibratory Information in Teleoperation and Virtual Environments," <i>PRESENCE</i> , 4(4):387-402, Harvard Univ., 1995.	
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G		GOBEL et al., "Tactile Feedback Applied to Computer Mice," <i>International Journal of Human-Computer Interaction</i> , Vol. 7, No. 1, pp. 1-24, 1995.	

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A		PIMENTEL et al., "Virtual Reality: through the new looking glass," 2 nd Edition; McGraw-Hill, ISBN 0-07-050167-X, pp. 41-202, 1994.	
		"Cyberman Technical Specification," Logitech Cyberman SWIFT Supplement to Logitech Mouse Technical Reference and Programming Guide, 4/5/1994.	
		OUHYOUNG et al., "The Development of A Low-Cost Force Feedback Joystick and Its Use in the Virtual Reality Environment," <i>Proceedings of the Third Pacific Conference on Computer Graphics and Applications, Pacific Graphics '95</i> , Seoul, Korea, 21-24 August 1995.	
		KACZMAREK et al., "Tactile Displays," <i>Virtual Environment Technologies</i> , Chap. 9, pp. 349-414.	
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		"Component Maintenance Manual With Illustrated Parts List, Coaxial Control Shaker Part No. C-25502," Safe Flight Instrument Corporation, Revised 28 January 2002 (3 pages).	
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		SCANNELL, "Taking a Joystick Ride," <i>Computer Currents</i> , Boston Edition, Vol. 9, No. 11, November 1994	
		YAMAKITA et al., "Tele-Virtual Reality of Dynamic Mechanical Model," <i>Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems</i> , Raleigh, NC, July 7-10, 1992	
		NOLL, "Man-Machine Tactile," <i>SID Journal</i> , July/August 1972 Issue.	
B		ROSENBERG, "Virtual Fixtures: Perceptual Overlays Enhance Operator Performance in Telepresence Tasks," <i>Ph.D. Dissertation</i> , Stanford University, June 1994.	

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		4,581,491	04-1986	Boothroyd	
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet **2** of **11****Complete if Known**

Application Number	10/687,830
Filing Date	October 20, 2003
First Named Inventor	Louis B. Rosenberg
Art Unit	2635
Examiner Name	Unassigned
Attorney Docket Number	IMMR-084/04US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code ² (if known)			
A		4,934,694	06-1990	McIntosh	
		4,935,728	06-1990	Kley	
		4,949,119	08-1990	Moncrief et al.	
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**INFORMATION DISCLOSURE
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Art Unit	2635
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Attorney Docket Number	IMMR-084/04US

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		Number Kind Code ² (if known)			
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Sheet **4** of **11****Complete if Known**

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First Named Inventor	Louis B. Rosenberg
Art Unit	2635
Examiner Name	Unassigned
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<i>At</i>		5,589,828	12-1996	Armstrong	
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Sheet **5** of **11****Complete if Known**

Application Number	10/687,830
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First Named Inventor	Louis B. Rosenberg
Art Unit	2635
Examiner Name	Unassigned
Attorney Docket Number	IMMR-084/04US

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		Number Kind Code ² (if known)			
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		6,028,593	02-2000	Rosenberg et al.	
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Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
A		EP	0626634	A2			
		WO	95/02233				
		WO	95/20787				
		WO	95/20788				
		WO	95/32459				
		WO	96/16397				
		WO	95/22591				
		WO	96/42078				
		WO	97/12357				
		WO	97/19440				
		WO	97/21160				
		EP	0349086	A1			

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Sheet 6

of

11

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Application Number	10/687,830
Filing Date	October 20, 2003
First Named Inventor	Louis B. Rosenberg
Art Unit	2635
Examiner Name	Unassigned
Attorney Docket Number	IMMR-084/04US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
A3		"The Personal Digitizer™," Immersion Human Interface Corporation 1994.
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Sheet **7** of **11****Complete if Known**

Application Number	10/687,830
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First Named Inventor	Louis B. Rosenberg
Art Unit	2635
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<i>Am</i>		Burdea et al., "Distributed Virtual Force Feedback, Lecture Notes for Workshop on Force Display in Virtual Environments and its Application to Robotic Teleoperation," 1993 IEEE International Conference on Robotics and Automation, pp. 25-44, May 2, 1993.
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Examiner Signature	<i>am</i>	Date Considered	12/4/04
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Sheet 8 of 11

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Application Number	10/687,830
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First Named Inventor	Louis B. Rosenberg
Art Unit	2635
Examiner Name	Unassigned
Attorney Docket Number	IMMR-084/04US

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<i>h</i>		IBM Technical Disclosure Bulletin, "Mouse Ball-Actuating Device with Force and Tactile Feedback," vol. 32, No. 9B, Feb. 1990.
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Examiner Signature	<i>cut</i>	Date Considered	<i>12/21/04</i>
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Sheet 9 of 11

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Application Number	10/687,830
Filing Date	October 20, 2003
First Named Inventor	Louis B. Rosenberg
Art Unit	2635
Examiner Name	Unassigned
Attorney Docket Number	IMMR-084/04US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
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Examiner Signature		Date Considered	1/4/04
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Examiner
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